DoD Collective Protection Research and Development Program

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Joint Science and Technology Panel for Chemical Biological Defense

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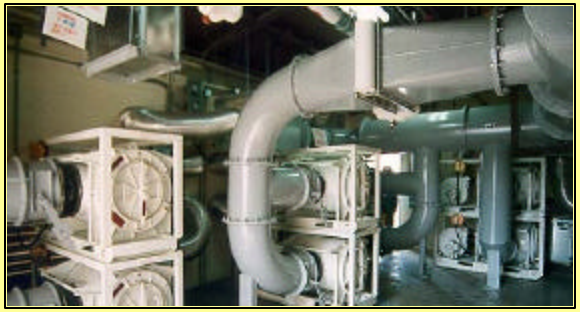

Collective Protection Rationale for Investment

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- **The War Fighter Must Perform The Assigned Mission at Near-Normal Tempo in an Environment Contaminated by Chemical, Biological, and Toxic Industrial Materials**
  - **Collective Protection Gives the War Fighter an Opportunity to Function Without the Constraints and Burdens of Individual Protection Equipment**

Collective Protection Rationale for Investment

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Collective Protection Provides:

- Relief From Sustained Operations in Full Individual Protection Equipment
- Clean Environments for Operations That Cannot Be Performed Under NBC Contaminated Conditions
- Shelters for Equipment Not Easily Decontaminated

Collective Protection Technology Applications

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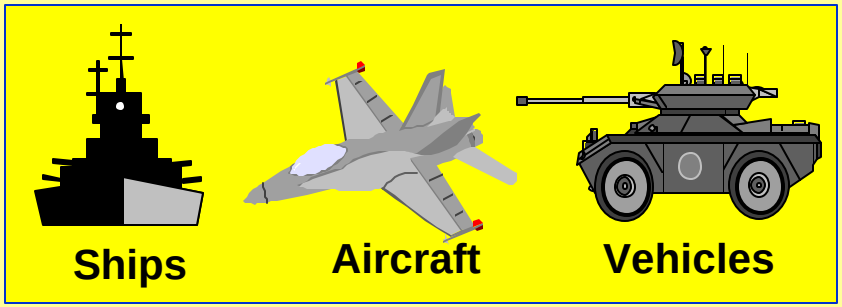
Functional Areas



Transportable Shelters

Fixed Sites

Mobile Platforms

Technology Areas

Air Purification Technologies
- Vapor
- Aerosol / Particulate

Shelter Materials

Air Purification Thrust

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Strategy:

- Develop Advanced Filter Materials and Design Concepts
  - Advance Vapor, Aerosol, and Particulate Separation Technologies
  - Replace or Enhance Carbon-Based Systems
  - Develop a Fundamental Understanding and Predictive Capability for Each Separation Process
- Enhance Agent Protection Capability to Include TIMs
  - Enhance Single-Pass and Regenerable Filtration Systems
- Extend Filter Life and Reduce the Burden of Filter Exchanges and Other Logistics
  - Improve Affordability and Deployability
- Develop and Test Design Concepts for Residual Life Indicators for Use in NBC Collective Protective Filters

Potential Air Purification Technologies

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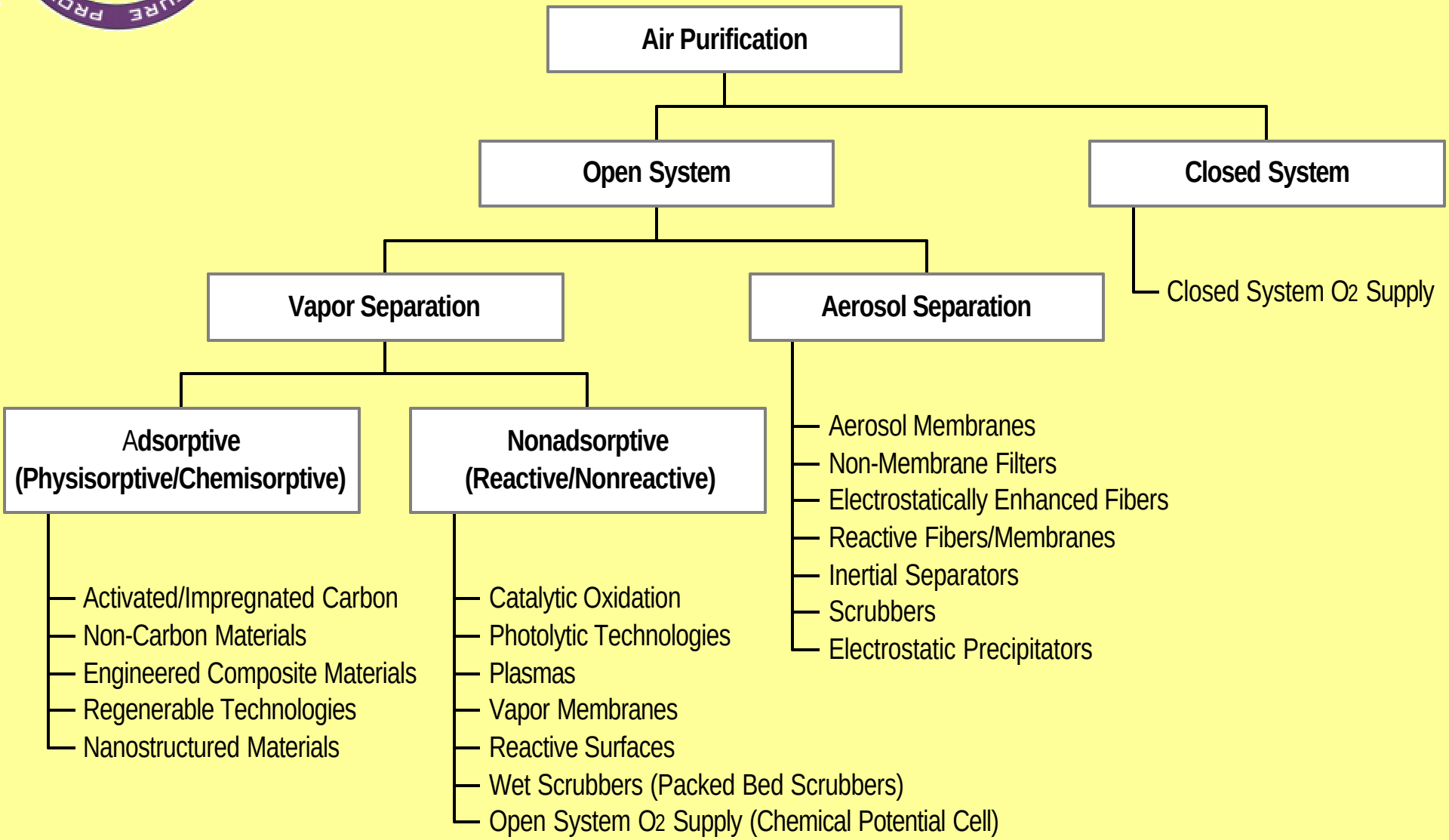

Shelter Materials Thrust

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Strategy:

- **Develop Advanced Shelter Materials and Shelter Systems**
  - **Polymer and Composite Materials Having Impermeable, Semi-Permeable and Selectively Permeable Membranes That May Be Easily Decontaminated and Reused**
  - **Soft and Rigid Shelters, Liners, Flooring, Closures, Seals, and Structural Systems**
- **Develop Chemistries for Reactive Shelter Material Coatings Providing Self-Decontamination**
- **Reduce the Weight, Cube, Power, and Cost of Shelter Systems**
  - **Integrated, CB Hardened Generator, Environmental Control Unit, Blower, and Filter Systems**
  - **Reflective, Shielding, Power Generating, and Insulative Materials**

Potential Shelter Materials

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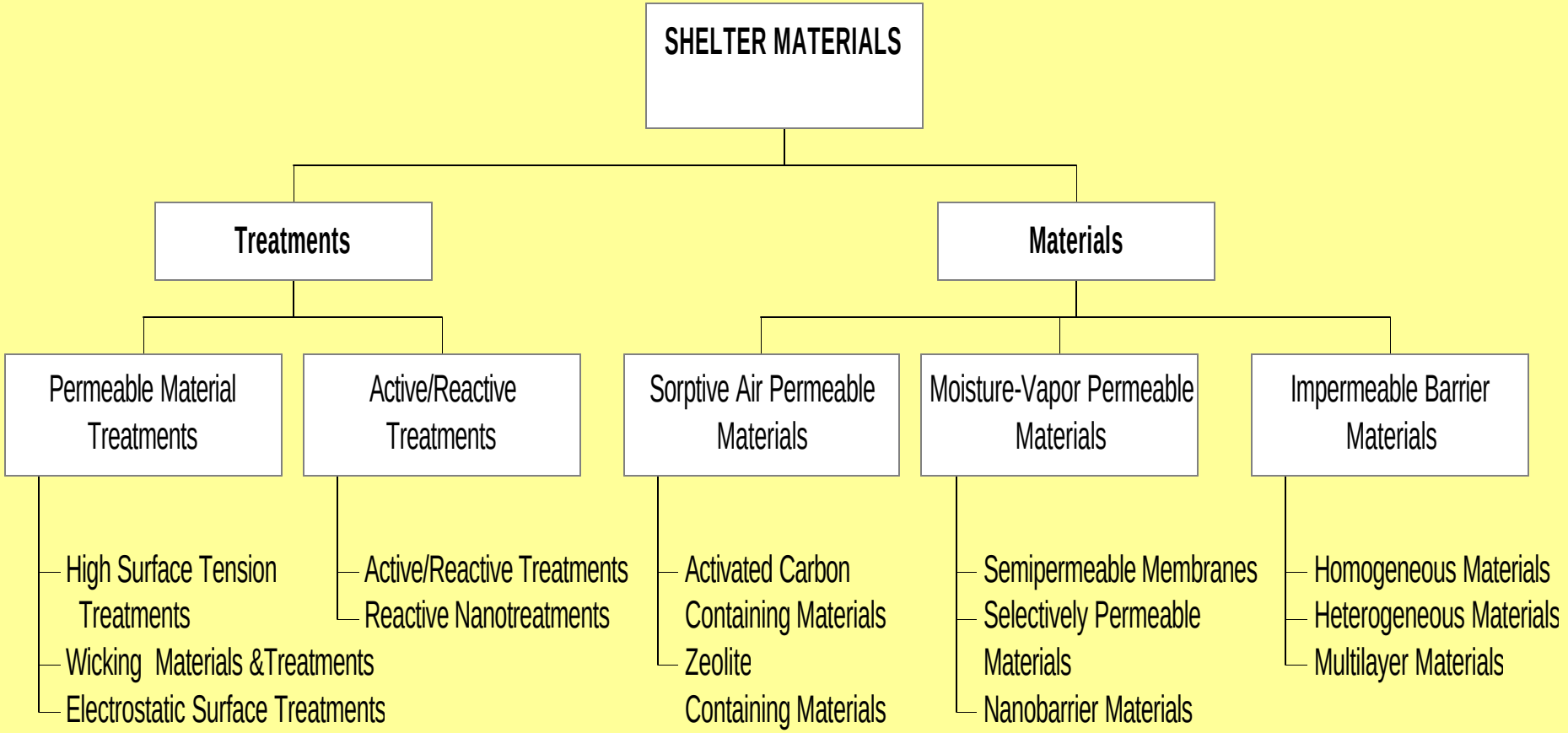

Collective Protection Roadmap

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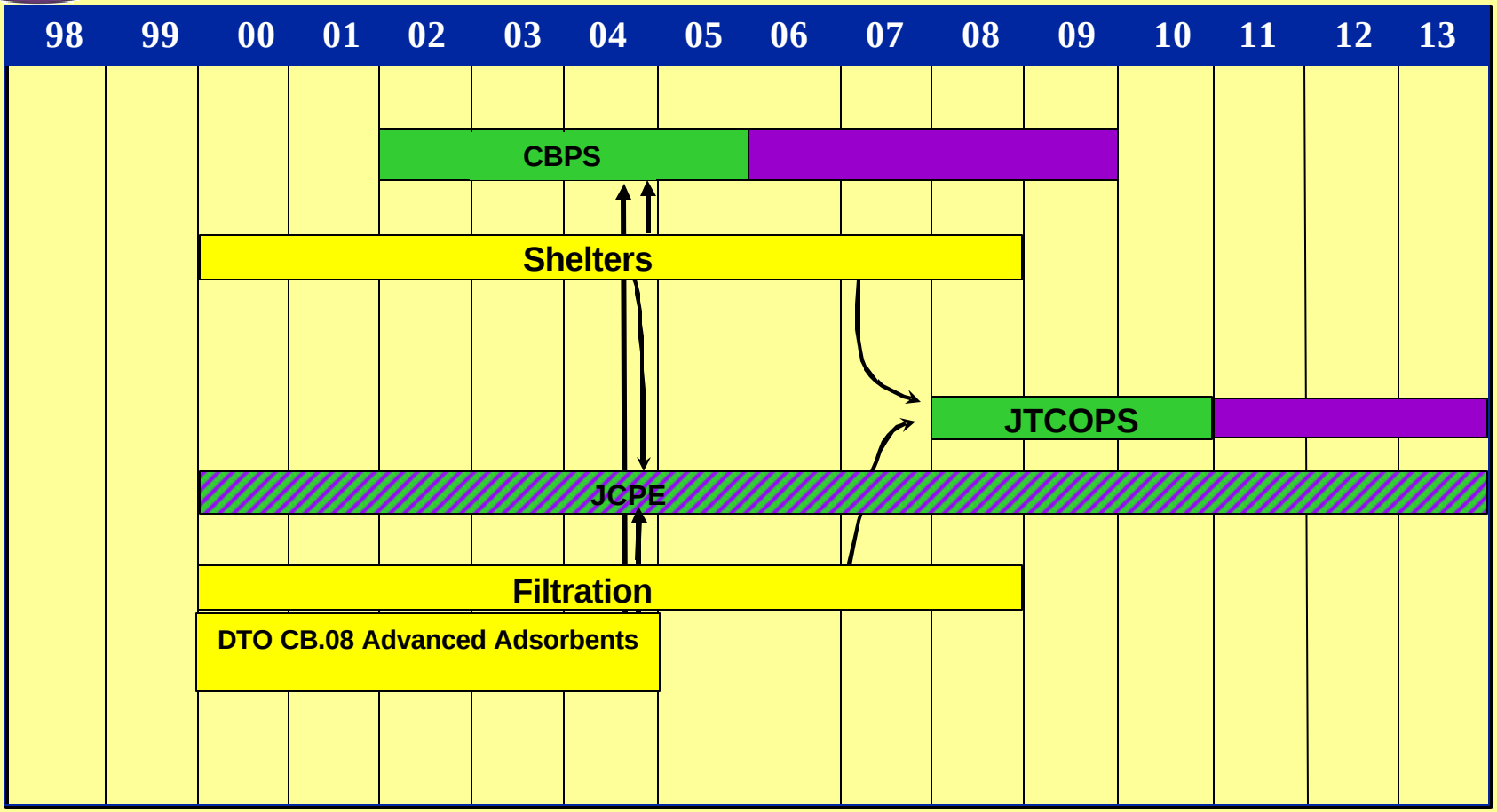

Tech Base

Developmental

Procurement

CBPS – CB Protective Shelter
JTCOPS – Joint Transportable Collective Protection System
JCPE – Joint Collective Protection Equipment

Collective Protection
FY 03 Project Taxonomy

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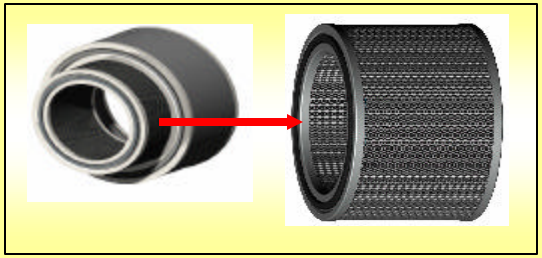

Collective Protection

Air Purification Thrust Area

- DTO CB.08 – Advanced Adsorbents for Protection Applications
- Filtration of Toxic Industrial Chemicals
- COLPRO Filter Residual-Life Indicator
- Evaluation of Electret Filter
- TIC/TIM HEPA Degradation Mechanisms
- Anti-microbial and Hybrid Air Filters
- Advanced Regenerative Filtration
- Open / Closed Circuit Closed Capsule
- Advanced Hybrid Air-Purification Tech Demo

Shelters Thrust Area

- Integrated COLPRO Shelter Systems
- Self-Decontaminating Shelter Materials
- COLPRO Blast Mitigation Methodology
- COLPRO Program Development and Coordination

Summary

The Collective Protection Tech Base Program Will:

- **Develop Collective Protection Technologies Against NBC Agents and Toxic Industrial Materials**
- **Improve Logistics by Reducing or Eliminating Filters and Minimizing Weight and Cube of Systems**
- **Improve Survivability, Decontaminability, and Deployability of Collective Protection Systems**

Questions?